CLAIMS:

1. A dilatation balloon comprising fibers in a matrix material.

2. The dilatation balloon of claim 1 wherein said fibers are reinforcement fibers.

3. The dilatation balloon of claim 1 wherein said fibers are expansion control fibers.

4. The dilatation balloon of claim 1 wherein said fibers are embedded in the matrix material of the balloon.

5. The dilatation balloon of claim 4 wherein said fibers are embedded in the matrix material of the balloon in a helical pattern.

6. The dilatation balloon of claim 1 wherein said fibers are thermoplastic.

7. The dilatation balloon of claim 6 wherein said fibers are non-elastomeric.

8. The dilatation balloon of claim 6 wherein said fibers are selected from the group consisting of polyethylene, polyethylene terephthalate and mixtures thereof.

9. The dilatation balloon of claim 1 wherein said matrix material is thermoplastic.

10. The dilatation balloon of claim 9 wherein said matrix material comprises an elastomer.

11. The dilatation balloon of claim 1 wherein said matrix material comprises polyurethane.

12. The dilatation balloon of claim 1 where said matrix material is non-elastomeric and said fibers are elastomeric.

13. The dilatation balloon of claim 1 further in combination with a catheter assembly, a stent or a combination thereof.

14. A catheter system for introducing and implanting a stent member in a body comprising a catheter member having first and second ends, said first end having an inflatable portion comprising a matrix material and fibers, a lumen in fluid communication with said inflatable portion and said second end to provide means for inflating said inflatable portion.

15. The catheter system of claim 14 further in combination with a stent.

16. The catheter system of claim 14 wherein said fibers are reinforcement fibers.

17. The catheter system of claim 14 wherein said fibers are expansion control fibers.

18. The catheter system of claim 14 wherein said fibers are embedded in the matrix material of the inflatable portion.

19. The catheter system of claim fibers are embedded in the matrix material of the inflatable portion in a helical pattern.

20. The catheter system of claim 14 wherein said fibers are thermoplastic.

21. The catheter system of claim 20 wherein said fibers are non-elastomeric.

22. The catheter system of claim 14 wherein said fibers are selected from the group consisting of polyethylene, polyethylene terephthalate and mixtures thereof.

23. The catheter system of claim 14 wherein said inflatable portion is formed from a thermoplastic elastomer.

24. The catheter system of claim 14 wherein said inflatable portion is formed from polyurethane.

25. The catheter system of claim 14 wherein said inflatable portion is formed of a non-elastomeric material enclosed within an elastomeric material.

26. The catheter system of claim 14 further comprising an expandable stent member capable of permanent deformation when expanded.

27. The catheter system of claim 14 wherein at least a portion of said stent member is releasably attached to said inflatable portion by a bond.